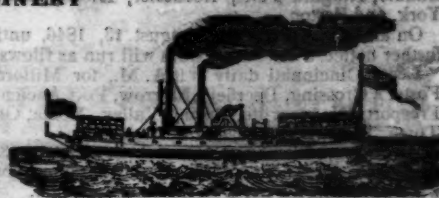


# AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY

AND MINES.

ESTABLISHED 1831.



PUBLISHED WEEKLY, AT No. 105 CHESTNUT STREET, PHILADELPHIA, AT FIVE DOLLARS PER ANNUM.

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SATURDAY, APRIL 24, 1847.

[WHOLE No. 566, VOL. XX.

## AMERICAN RAILROAD JOURNAL.

OFFICE AT THE FRANKLIN HOUSE,  
105 Chestnut Street,  
PHILADELPHIA, PA.

This is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

TERMS.—Five Dollars a year, in advance.

## RATES OF ADVERTISING.

One page per annum.....	\$125 00
One column ".....	50 00
One square ".....	15 00
One page per month.....	20 00
One column ".....	8 00
One square ".....	2 50
One page, single insertion.....	8 00
One column ".....	3 00
One square ".....	1 00
Professional notices per annum.....	5 00

**BOSTON AND PROVIDENCE RAILROAD.** Passenger Notice. Summer Arrangement. On and after Monday, Sept. 28, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m. Accommodation Trains, leave Boston at 7½ a.m. and 3½ p.m., and Providence at 8 a.m. and 3½ p.m. Dedham trains, leave Boston at 9 a.m.; 3 p.m., 5½ p.m., and 10½ p.m. Leave Dedham at 8 a.m. and 4½ and 9 p.m.

Stoughton trains, leave Boston at 11½ a.m. and 4-10 p.m. Leave Stoughton at 8 a.m. and 2½ p.m. All baggage at the risk of the owners thereof. 31 ly W. RAYMOND LEE, Sup't.

**BRANCH RAILROAD AND STAGES** Connecting with the Boston and Providence Railroad.

Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

## PHILADELPHIA AND READING RAILROAD.—Passenger Train Arrangement for 1847.

A Passenger Train will leave Philadelphia and Pottsville daily, except Sundays, at 9 o'clock A. M.

The Train from Philadelphia arrives at Reading at 12 18 M.

The Train from Pottsville arrives at Reading at 10 43 A. M.

Fares.	Miles.	No. 1.	No. 2.
Between Phila. and Pottsville, 92		\$3.50 and \$3.00	
" " Reading, 58		2.25 and 1.90	
" " Pottsville, 34		1.40 and 1.20	

Five minutes allowed at Reading; and three at other way stations.

Passenger Depot in Philadelphia corner of Broad and Vine streets. 8tf

## LEXINGTON AND OHIO RAILROAD.

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m.; and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare \$1.25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort. The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and 9 a.m. from Frankfort, other hours as above. 35ly

## BOSTON AND MAINE RAILROAD.

Upper Route, to Portland and the East.

**SUMMER ARRANGEMENT,**  
April 1, 1847.

**PORTLAND TRAINS.**  
Leave Boston at 7 A.M. and 2½ P.M.  
Leave Portland at 7½ A.M. and 3 P.M.

**GREAT FALLS TRAIN.**  
Leave Boston at 5 P.M.  
Leave Great Falls at 6½ A.M.

**HAVERHILL TRAINS.**  
Leave Boston at 11½ A.M. and 6-20 P.M.  
Leave Haverhill at 6½ A.M. and 4½ P.M.

**READING TRAINS.**  
Leave Boston at 8½ A.M. and 8½ P.M.  
Leave Reading at 6 A.M. and 1½ P.M.

**MEDFORD BRANCH TRAINS.**  
Leave Boston at 7½, 11½ A.M., 2½, 5½, 7 P.M.  
Leave Medford at 6½, 8 A.M., 1½, 4½, 6 P.M.

The Depot in Boston is on Haymarket Square.

Passengers are not allowed to carry Baggage above \$50 in value, and that personal, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value. 11y31

CHAS. MINOT, Sup't.

## SUMMER ARRANGEMENT.—NEW YORK AND ERIE RAILROAD LINE, from April 1st until further notice, will

run daily (Sundays excepted) between the city of New York and Middletown, Goshen, and intermediate places, as follows:

### FOR PASSENGERS—

Leave New York at 7 A.M. and 4 P.M.  
Middletown at 6½ A.M. and 3 P.M.

FARE REDUCED to \$1.25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

### FOR FREIGHT—

Leave New York at 5 P.M.  
Middletown at 12 M.

The names of the consignees and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P.M. in New York.

Apply to J. F. Clarkson, agent, at office corner of Duane and West sts. H. C. SEYMOUR, Sup't. March 25th, 1846.

Stages run daily from Middletown, on the arrival of the afternoon train, to Milford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board. 13tf

## NORWICH AND WORCESTER RAILROAD.

Summer Arrangement. Change of

Hours. Commencing on Wednesday, April 21, 1847.

Accommodation Trains, daily, (except Sunday.) Leave Norwich, at 6 a.m., and 4½ p.m. Leave Worcester, at 8½ a.m., and 4½ p.m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 2½ p.m. train from Boston.

New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the steamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 6½ p.m., daily, except Sunday, stopping at Danielsonville and Norwich.

Freight Trains daily each way, except Sunday. Leave Norwich at 7, and Worcester at 6 30 a.m. Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are Less when paid for Tickets than when paid in the Cars. J. W. STOWELL, Sup't. 33ly

**LITTLE MIAMI RAILROAD.—OPEN**

**TO SPRINGFIELD**—Distance 84 miles—connecting at Xenia and Springfield with Messrs. Neil, Moore, & Co's. daily daylight lines of stages going east and north, to Columbus, Zanesville, Wheeling, Cleveland, and Sandusky City, via Urbana, Bellefontaine, Kenton, and the Mad river and lake Erie railroad, or Columbus, Delaware, and the Mansfield and Sandusky City railroad—forming, by these connections, the cheapest and most expeditious route to Buffalo, Niagara Falls, Rochester, Albany, New York, and Boston.

On and after Thursday, August 13, 1846, until further notice, a Passenger train will run as follows: Leave Cincinnati daily at 9 A. M., for Milford, Foster's Crossing, Deerfield, Morrow, Fort Ancient, Freepoint, Wayneville, Spring Valley, Xenia, Old Town, Yellow Springs, and Springfield. Returning, will leave Springfield at 4 hours 35 minutes A. M. A line of Hacks runs in connection with the Cars, between Deerfield and Lebanon.

**Fare**—From Cincinnati to Lebanon...\$1 00  
" " " Xenia..... 1 50  
" " " Springfield... 2 00  
" " " Columbus... 4 00  
" " " Sandusky city 8 00

The Passenger trains runs in connection with Strader & Gorman's line of Mail Packets to Louisville.

Tickets can be procured at the Broadway Hotel, Denison House, or at the Depot of the Company, on East Front street.

Further information and through tickets for the Stage lines, may be procured at P. Campbell, Agent on Front street, near Broadway.

The company will not be responsible for baggage beyond 50 dollars in value, unless the same is returned to the conductor or agent, and freight paid at a passage for every \$500 in value over that amount.

The 11 P. M. train from Cincinnati, and the 2 40 P. M. train from Xenia, will be discontinued on and after Monday, the 10th instant.

A freight train will run daily.  
474 W. H. CLEMENT, Sup't.

**BALTIMORE AND OHIO RAILROAD.**

**MAIN STEM.** The Train carrying the Great Western Mail leaves Bal-

timore every morning at 7½ and 11 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5½ P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

**WASHINGTON BRANCH.**

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5½ P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington, and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. s13y1

**MANUFACTURE OF PATENT WIRE**

Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, Civil Engineer, Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition. 2y191y

**BALTIMORE AND SUSQUEHANNA**

Railroad.—Reduction of Fare. Morning and Afternoon Trains between Balti-

more and York.—The Passenger trains run daily, except Sunday, as follows:

Leaves Baltimore at.....9 a.m. and 3½ p.m.  
Arrives at.....9 a.m. and 6½ p.m.  
Leaves York at.....5 a.m. and 3 p.m.  
Arrives at.....12½ p.m. and 8 p.m.  
Leaves York for Columbia at...1½ p.m. and 8 a.m.  
Leaves Columbia for York at...8 a.m. and 2 p.m.

**FARE.**  
Fare to York.....\$1 50  
" Wrightsville.....2 00  
" Columbia.....2 12½  
Way points in proportion.

**PITTSBURG, GETTYSBURG AND HARRISBURG.**

Through tickets to Pittsburg via stage to Harrisburg.....\$9  
Or via Lancaster by railroad.....10  
Through tickets to Harrisburg or Gettysburg...3  
In connection with the afternoon train at 3½ o'clock, a horse car is run to Green Spring and Owing's Mill, arriving at the Mills at.....5½ p.m.  
Returning, leaves Owing's Mills at.....7 a.m.  
D. C. H. BORDLEY, Sup't.  
Ticket Office, 63 North st.

**CENTRAL RAILROAD—FROM SAVAN-**

nah to Macon. Distance 190 miles.

This Road is open for the trans-

portation of Passengers and

Freight. Rates of Passage, \$8 00. Freight—

On weight goods generally... 50 cts. per hundred.

On measurement goods..... 13 cts. per cubic ft.

On brls. wet (except molasses and oil).....\$1 50 per barrel.

On brls. dry (except lime).... 80 cts. per barrel.

On iron in pigs or bars, castings for mills, and unboxed machinery..... 40 cts. per hundred.

On hhds. and pipes of liquor, not over 120 gallons.....\$5 00 per hhd.

On molasses and oil.....\$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission.

THOMAS PURSE, y40 Gen'l. Sup't. Transportation.

**NEW YORK & HARLEM RAILROAD**

CO.—Winter Arrangement.

On and after Monday, November 23, 1846, the cars will run as follows:

Leave 27th street for 42d street, Deaf and Dumb Institute, Yorkville, Harlem Morrisiana, and Williams' Bridge, at 7 o'clock a.m. From City Hall for above named places, 2 p.m. [freight train], 2 30 p.m. 5 p.m. to Morrisiana only.

Leave City Hall for Harlem, Morrisiana, Fordham and Williams' Bridge, at 7 45 a.m., and 10 45 a.m.; 1 15 p.m., 2 p.m. [freight train], 2 30 p.m., and 3 45 p.m.

Leave City Hall for Hunt's Bridge, Bronx, Tuckahoe, Hart's Corners White Plains, Davis' Brook, Unionville and Pleasantville, [Pleasantville 4 miles from Sing Sing.] 7 45 and 10 45 a.m.; 1 15 p.m., 2 p.m. [freight train], and 3 45 p.m.

**RETURNING.**

Leave Pleasantville, at 8, 10, [freight train], and 11, a.m.; 1 30, and 4, p.m.

Leave White Plains, at 8 12, 10 30, [freight train] and 11 20 a.m.; 1 50, and 4 20, p.m.

Leave Tuckahoe, 8 35, 10 55, [freight train], and 11 35, a.m.; 2 05, and 4 35, p.m.

Leave Williams' Bridge at 7 45, 8 50 and 11 50 a.m.; 2 20, 4, and 4 50 p.m.

Leave Morrisiana 8 and 9 05 a.m.; 12 05, 2 35, 4 20, 5 05 and 6 p.m.

Leave Yorkville, at 8 12 a.m.; 4 35 and 6 15 p.m.

**SUNDAY ARRANGEMENTS.**

Leave City Hall for Pleasantville and intermediate places, at 7 45 a.m.; 1 15 and 3 p.m.

Leave Pleasantville for City Hall, at 8 a.m.; 11, and 3 15 p.m.

Leave City Hall for Williams' Bridge and intermediate places, 10 45 a.m.; 2 30 p.m.

Leave Williams' Bridge for City Hall, at 8 50 and 11 50 a.m.; 1, 3 45 and 4 05 p.m. 4y49

**PHILADELPHIA, WILMINGTON & BALTIMORE RAILROAD.—1847.**

Winter Arrangement.

Philadelphia for Baltimore...8 a.m. and 4 p.m.

Baltimore for Philadelphia...9 a.m. and 8 p.m.

Connecting in Baltimore with Mail Lines south and west, as per notice of the Baltimore and Ohio Railroad—and with Mail Lines north from Philadelphia, both morning and afternoon.

Sundays, the Morning Lines do not run in either direction.

Accommodation train from Wilmington to Philadelphia, leaves Wilmington at 8 a.m., and returns at 2 p.m.

J. R. TRIMBLE, Engineer and General Superintendent.

**GEORGIA RAILROAD. FROM AUGUSTA TO ATLANTA—171 MILES.**

AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO OOTHICALOGA, 80 MILES.

This Road in connection with

the South Carolina Railroad and

Western and Atlantic Railroad now forms a continuous line, 398 miles in length, from Charleston to Oothicaloga on the Oostenaula River, in Cass Co., Georgia.

RATES OF FREIGHT.

	Between Augusta and Oothicaloga, and Dalton.	Between Charleston, Oothicaloga and Dalton.
	260 miles.	336 miles.
1st class.	Boxes of Hats, Bonnets, and Furniture, per cubic foot.....	\$0 16 \$0 26
2d class.	Boxes and Bales of Dry Goods, Sadlery, Glass, Paints, Drugs and Confectionary, per 100 lbs.	1 00 1 50
3d class.	Sugar, Coffee, Liquor, Bagging, Rope, Cotton Yarns, Tobacco, Leather, Hides, Copper, Tin, Feathers, Sheet Iron, Hollow Ware, Castings, Crockery, etc.	0 60 0 85
4th class.	Flour, Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Bar Iron, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc.....	0 45 0 70
	Cotton, per 100 lbs.....	0 45 0 65
	Molasses, per hoghead.....	8 50 13 50
	" " barrel.....	2 00 3 25
	Salt per bushel.....	0 17
	Salt per Liverpool sack.....	95
	Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows.....	0 75 1 37

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothicaloga.

J. EDGAR THOMSON,

Ch. Eng. and Gen. Agent.

Augusta, Sept. 2d, 1846. \*441y

**THE WESTERN AND ATLANTIC**

Railroad.—This Road is now in operation to Oothicaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tusculumbia, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothicaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT,

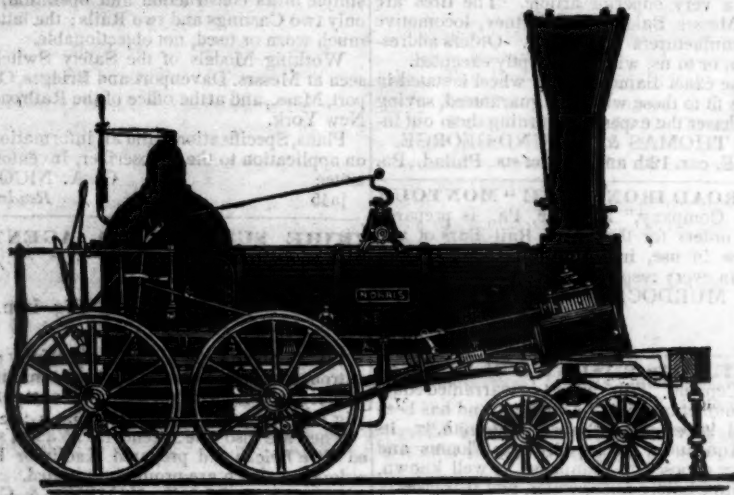
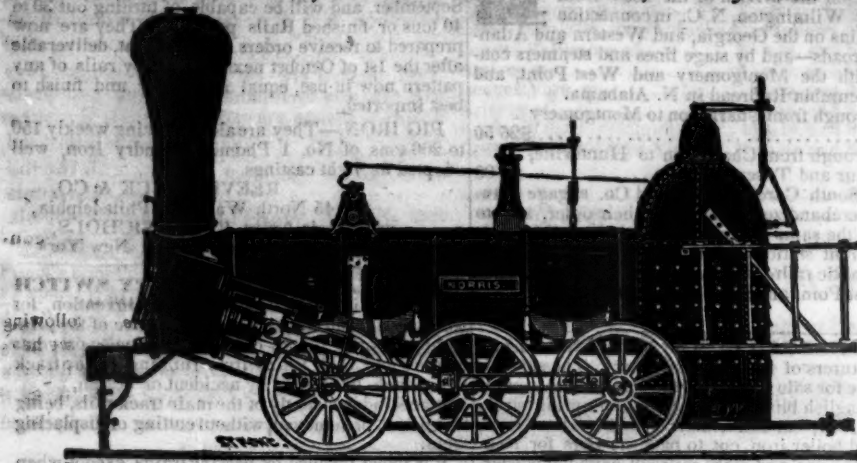
Chief Engineer.

Atlanta, Georgia, April 16th, 1846. 1y1

1y10 PETER COOPER 17 Burling Slip.  
New York.

# NORRIS' LOCOMOTIVE WORKS.

## BUSH HILL, PHILADELPHIA, Pennsylvania.



**MANUFACTURE** their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	1,	15 inches Diameter of Cylinder,	× 20 inches Stroke.
"	2,	14	" " × 24 " "
"	3,	14½	" " × 20 " "
"	4,	12½	" " × 20 " "
"	5,	11½	" " × 20 " "
"	6,	10½	" " × 18 " "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

**NORRIS, BROTHERS.**

**KEARNEY FRIE BRICK. F. W. BRINLEY,** Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

James P. Allaire, }  
Peter Cooper, } New York.  
Murdock, Leavitt & Co. }  
J. Triplett & Son, Richmond, Va.  
J. R. Anderson, Tredegar Iron Works, Richmond, Va.  
J. Patton, Jr. } Philadelphia, Pa.  
Colwell & Co. }  
J. M. L. & W. H. Scovill, Waterbury, Conn.  
N. E. Screw Co. } Providence, R. I.  
Eagle Screw Co. }  
William Parker, Supt. Bost. and Worc. R. R.  
New Jersey Malleable Iron Co., Newark N. J.  
Gardiner, Harrison & Co. Newark, N. J.  
25,000 to 30,000 made weekly.

**THE NEWCASTLE MANUFACTURING** Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention.

**ANDREW C. GRAY,**  
a45 President of the Newcastle Manuf. Co.

**RAILROAD IRON AND LOCOMOTIVE** Tyres imported to order and constantly on hand by **A. & G. RALSTON**  
Mar. 20th 4 South Front St., Philadelphia.

**VALUABLE PROPERTY ON THE MILL Dam For Sale.** A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 88,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 ft. with lathes, work benches, Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45 feet two stories high, with a shed part 45x30 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

For terms, apply to **HENRY ANDREWS**, 48 State st., or to **CURTIS, LEAVENS & CO.**, 106 State st., Boston, or to **A. & G. RALSTON & Co.**, Philadelphia. j45

**TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.**

**PASCAL IRON WORKS.**

**WELDED WROUGHT IRON TUBES**

From 4 inches to 4 in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T, L, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by **MORRIS, TASKER & MORRIS.**  
Warehouse S. E. Corner of Third & Walnut Streets, PHILADELPHIA.

**TO LOCOMOTIVE AND MARINE ENGINE Boiler Builders.** Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

**MORRIS TASKER & MORRIS,**  
Warehouse S. E. corner 3d and Walnut Sts., Philadelphia. 11f

**PATENT INDESTRUCTIBLE WATER** Pipes. The subscribers continue to manufacture the above Pipes, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits. This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York.

**J. BALL & CO.**

## DYKING AND RECLAIMING LAND IN HOLLAND.

The following is from the London Mining Journal for February 20th:

The paper read was a continuation of that which was brought forward at the last meeting by Mr. G. B. W. Jackson, Assoc. Inst. C. E. It gave an "account of the mode of gaining land from the sea by polders, and the art of building with fascine work as practised in Holland and Germany."

The paper commenced by reference to the works of Mela, Weibeking, Sganzia, Caland, Hyde Clarke, and others, as having given the best known accounts of Dutch water constructions and the situations of these labors. It then described the "polders" as being tracts of land recovered from the sea by the construction of a belt of dykes, gradually raised to above the water level, and then pumped dry, by which means they were still rendered habitable, the level of many of the more ancient being beneath that of the sea. When thus reclaimed, they form the finest sand, and produce for many years immense crops, almost without the application of manure. The usual construction of these dykes was described to be by sinking successive layers or beds of fascines or faggots of almost 30 in. thick, by from 8 to 16 yards in width, and of proportionate length, weighted with gravel and stones, mingled with clay, seaweed, and silt. These layers were continued until they reached above the sea level, when the top was constructed of more solid materials, and sometimes capped with a flooring of brick work, as the public roads were formed upon them. The difficulties of the usual construction of the larger and of the smaller dykes of various forms and heights were fully described, particularly entering into the details of the dimensions and quantities of the materials employed, and the precautions to be taken for the delicate operation of closing the last portion of each dyke, which, unless skillfully conducted in proper weather, frequently hazards the safety of the whole work.

The different kinds of lock gates and sluices used for facilitating the outflow of the land waters, and preventing the ingress of the sea, were fully described, and drew from several members accounts of balance and other gates of peculiar construction used in Holland and elsewhere. The original kind appear to have been the self-acting balance gates of unequal surface, so placed upon pivots, that on the rising of the tide, they closed, and remained so, until, on the receding of the tide, the weight of the accumulated land waters forced them open. Recently, machinery has been employed for opening and shutting these gates, and the ordinary lock gates have generally been adopted, and it was found that they were frequently prevented from shutting by some floating matter getting between the mitre posts, and great leakage ensued. The general details were then given of the method adopted for the subsequent drainage of the polder lands, the separation of the springs, the upland and lowland waters, and the methods of conducting them out to sea. The slopes of the faces of the dykes vary considerably. Some of the low dykes are in section

of the form of an arc of a circle of 6 to 10 ft. cord, 10 in. to 1 ft. versed sine, covered with fascine matting staked down upon a clay bed. Others have a base of 19 ft. wide and 5 feet high, of a triangular section, also made of fascines and stakes, secured by hurdles and wattling, with clay, peat, sea shells, and sand, well rammed in, and then covered with turf. Others are formed of rows of piles 16 ft. long, with their heads 6 or 7 ft. above the shore, joined longitudinally and laterally by wailing timber, filled in and around with fascine beds, and weighted with stone. Baskets filled with sand are also used in certain situations, as well as various modifications of all these kinds of protections. It was stated that these constructions were found to succeed better, and last as long as stone, being at the same time about half the cost; and in the discussion which ensued, this statement was confirmed even for some parts of England, where stone was not expensive.

Our limits will not permit a more extended notice of this excellent paper, of which it was justly said by one of the speakers that "it is the first detailed account in the English language of some of the most interesting hydraulic works of Holland."

## The "Air Line" Again.

The Boston Times, after the last severe storm, appropriates a column to the subject of a railroad from New York to Boston, and amongst other arguments, pressing the matter upon the consideration of its readers, the editor remarks:—

"We have now been without a mail from New York and the South for two days in succession, a misfortune by which publishers, merchants, and all interested in the regular transmission of intelligence, are put to serious inconvenience and loss. This is not a solitary instance of disappointment and embarrassment. The same derangement of business has occurred frequently during the past winter and present spring; in fact, we do not recollect a season in which the mail failures have been so frequent; and the active state of business and the interesting position of our national affairs have rendered these interruptions to the regular transmission of commercial data and news peculiarly unfortunate now. The worst of it is, there is no fit fault to find with any individual; and had there been, it would have been a great relief to the overcharged feelings of a disappointed editor to launch some of his *brutum fulmen* at the head of the offender. But the elements have conspired against us, and made a Russian campaign of it.

This fact strongly establishes the imperious necessity of forming some line of communication, between New York and Boston, which shall be independent of the weather at all times; a route over which the mail and passengers may be despatched with safety and speed, blow high or blow low. The "Air Line" so called, from Boston to New York, a petition for the charter of which is now before our legislature, seems imperatively demanded by the wants of the public, and would undoubtedly supply all the deficiencies of which they have had so frequent and just cause to complain. The advantages of this

route are so obvious that the strenuous opposition made to it by interested individuals and corporations justly incurs the censure due to selfishness and illiberality. It would ill become the legislature of Massachusetts, after granting so many railroad charters as they have, to discountenance so grand and praiseworthy a scheme, a plan in which the mass of the community are favorably interested, because it happens to conflict with the money-making schemes of certain individuals. We look for a more liberal spirit of legislation from the Old Bay State and are convinced that it will prevail.

## RAILWAY SHAREHOLDER'S MANUAL.

We find, in the Railway Chronicle, the following notice and extract from a work of which we have heard much—and which we should like well to see

The extract alluded to we give at length, as it shows so conclusively what has been accomplished by the introduction of railroads.

"The Railway Shareholder's Manual. By Henry Tuck. Eighth Edition.

"Eight editions of a book in less than two years is a sufficient evidence of its merits and usefulness. Mr. Tuck's Manual keeps pace with the increase of railway affairs; and after a careful examination of this present edition, we are happy to say that, considering its compass, it leaves us nothing to desire. We find in the preface some remarks which are worthy of repetition:

"But if railways are monopolies, what is to be said of canals? and yet at no time has there been a word uttered against these undertakings. The present inland navigation in Great Britain by means of canals, is estimated to be about 2,500 miles. Up to the introduction of the railway system, it afforded almost the exclusive means of conveyance of heavy goods and merchandize, from one part of the country to another, and especially from the principal manufacturing districts to the outports. Many of these undertakings have yielded an enormous return on the capital expended, and at the present time the Grand Junction canal pays a dividend of 7 per cent., the Melton canal 12 per cent., and the Oxford canal a dividend of 26 per cent., and neither the Times nor 'Cato' have held this to be a monopoly, or an inordinate profit. Notwithstanding, such is the advantage of the railway system, that the goods traffic is progressively being transferred to the railways, in every part of the kingdom."

"The effect of railways on canal charges are thus stated:

"The distance between Manchester and Hull is 99 miles; before the railway was opened, the chief traffic was carried on by canals. The freight for corn and flour was 24s. per ton, cotton twist 32s. 6d. per ton, and manufactured goods 45s. per ton. The Manchester and Leeds railway now carry corn and flour for 13s. per ton, cotton twist for 20s. per ton, and manufactured goods for 24s. per ton. On the Trent and Mersey canal, the freight for coal was 1s. 2d. per ton per mile; it is now reduced to one-half penny per ton per mile. The following tables of reduced tonnages in the Midland district are equally interesting:

Statement of reduced tonnages on canals, showing the advantage which the public have derived by competition between railways and canals.

Tonnage on the undermentioned lines of canal.	Rates which they were entitled, under their acts to charge, and which they did charge.	Reduced since 1836 to
Grand Junction, 97 miles:	£ s. d.	£ s. d.
On sundries.....	0 16 3½	0 2 0½
On coal.....	0 19 1	0 2 0½
Grand Union, 24 miles:		
On sundries.....	0 6 0	0 0 5½
On coal.....	0 2 11	0 0 5½
Union, 19 miles:		
On sundries.....	0 4 9	0 0 5½
On coal.....	0 2 1	0 0 5½
Leicester, 16 miles:		
On sundries.....	0 2 6	0 0 4
On coal.....	0 1 2	0 0 4
Loughborough, 10 miles:		
On sundries.....	0 2 6	0 0 4
On coal.....	0 1 2	0 0 4
Erewash, 11 miles:		
On sundries.....	0 1 0	0 0 4
On coal.....	0 1 0	0 0 0

London to Leicester by canal is 139 miles; London to Birmingham by canal, 144 miles; Whole tonnage from London to Leicester, 2s. 10½d.; whole tonnage from London to Birmingham, about 7s.

Inland Canals.	Present cost by canal.	Cost by railway.
Coals:	£ s. d.	£ s. d.
Milton Mowbray to Stamford.	0 9 0	0 2 7
do. Uppingham	0 7 0	0 3 5
do. Oakham...	0 3 0	0 1 2
Corn:		
Stamford to Milton Mowbray.	0 10 0	0 3 0
Oakham to do.	0 5 0	0 1 7

"Here is sufficient proof of the vast superiority of railways over canals in merchandize traffic, without adverting to the advantages possessed by railways for the conveyance of cattle, live stock, fish, fruit, milk, vegetables, and other perishable commodities; but when we take into consideration the immense passenger traffic, that has been called into existence since the introduction of railways, it is obvious that nothing but the most absurd prejudice, the most stupid obstinacy, or the most corrupt venality, can be opposed to the railway system."

#### Foreign Items.

**Improvements in Locomotives.**—Several experimental trips with the first of a class of narrow gauge engines, the patentees of which propose by them to secure greater safety and greater speed on the narrow gauge, have been made upon the London and North Western railway during the last three or four days. The locomotive in question is one of Mr. Crampton's in whose practical knowledge much reliance has been placed by the narrow gauge party for the production of a locomotive that shall possess both of the excellencies we have mentioned—viz., increased speed and power, and increased safety. The latter, as we shall show, appears to have been secured by the engine, the working of which we are about to notice. With respect to the speed the evidence is not of so positive a character; but it would be exceedingly unfair to draw any inference on this point from the details given below, and for the very plain

and simple reasons that are appended thereto. The engine alluded to is called the *Namur*, and has been made by Mr. Crampton for the Namur and Liege company. It is a six wheeled engine, with 7 ft. driving wheels.—One of the greatest hindrances which have heretofore presented themselves to the attainment of high speed upon the narrow gauge has been what is called the back pressure in the cylinder. This pressure is in proportion to the diameter of the blast pipe by which heated air is drawn through the tubes of the boiler, and the number of revolutions made by the driving wheels. To remedy this, Mr. R. Stephenson increased the diameter of the driving wheels of his outside cylinder and long-boiler engines to 6 ft.; then to 6 ft. 6 or 7 in.; and on Tuesday we saw, at Wolverton, a locomotive made by that eminent engineer and manufacturer with driving wheels 7 ft. in diameter. But we may very fairly doubt whether Mr. Stephenson, in thus increasing the diameter of his driving wheels to 7 ft., has not aimed at speed at the expense of safety. Without pretending to accuracy, we may venture to assert, that the 7 ft. driving wheel engine we saw on Tuesday had a height of nearly 9 ft. between the rail and the top of the boiler. Upon a road in perfect order, such a height of boiler might not be very objectionable at 60 miles an hour—that is, supposing this class of engine to possess sufficient power to run at that rate with moderate heavy trains; but we think there are few locomotive superintendents who would be perfectly at ease when riding upon such an engine at such a rate over the best laid and most vigilantly watched narrow gauge line in the kingdom. To obviate this difficulty of back pressure, Mr. Crampton has carried the axle of his driving wheel behind his fire-box; and as he uses outside cylinders, he can increase the diameter of those wheels without raising the height of the centre of gravity. For instance, while Mr. Stephenson's 7 ft. driving wheel engine has the top of the boiler 8 ft. 9 in. from the rail, Mr. Crampton's engine, with a similar driving wheel, has the top of the boiler about 6 ft. 9 in. only from the rail—that is, the centre of gravity in the one is 2 ft. lower than it is in the other. In this respect Mr. Crampton, we repeat, appears to have succeeded; for his engine, at the greatest speed attained by it on Tuesday, was remarkably steady—as steady as any engine we have ever noticed on the broad gauge. It would seem, therefore, unless it be contended that an engine with the driving wheel behind is less safe than an engine with the driving in the centre, that Mr. Crampton has attained one of his objects—viz., a large driving wheel with perfect steadiness, and a low centre of gravity. Mr. Crampton also seeks to effect as large an available reduction of back pressure as possible, by diminishing the thickness of the layer of coke in his fire box, and increasing the area of the fire bars. His theory is, that by thus lessening the thickness of the layer of coke, he is enabled to do with less draught, and can consequently increase the diameter of the blast pipe to its maximum size.

With these explanatory observations, we shall proceed to notice the working of the *Namur*. The engine was attached to the 12 o'clock train from Euston square. The train consisted of 9 carriages, weighing nearly 50 tons. Between Euston square and the 11th mile post, the speed was, upon a rising gradient of 1 in 350, 40 miles per hour. Between this station and Boxmoor, the next place at which the train stopped, the axles of the tender became very hot, and the speed of the engine was reduced; the rate, however, reached was 52 miles per hour, on a gradient of 1 in 1056. The train, notwithstanding that the steam had been partly shut off, arrived at Boxmoor 6 min. 30 sec. before its time. Here the axles were found to be still hot, and the driver was instructed not to run the engine at full speed. The speed was consequently below the capacity of the engine; but at her reduced power she made the Leighton station 10 min. 46 sec. before her time—that is, she made this time between Boxmoor and Leighton—because although the train reached the former station 6½ min. too soon, it did not leave the place till the moment marked down for the guidance of the station master. With axles still hot, the train left Leighton at the correct time, and arrived at Wolverton 8 min. before time, having reached a maximum speed of nearly 57 miles per hour. The steam was blowing off nearly the whole of the journey.

The *Namur* is stated to be 40 per cent. less in power than a large class of engine now in the course of construction for the London and North Western company, under Mr. Crampton's superintendence. This engine, will, we believe, have 5 per cent. more power than the best engines at present on the narrow gauge lines—in safety, we should imagine it will be superior beyond all comparison. We have now to ascertain what the *Namur* will do when it gets into good working order, and has no drawbacks of hot axles, and the circumstances attendant upon the working out a new arrangement like Mr. Crampton's. The first trip taken by the above engine was on Saturday last. On that occasion she was attached to a special train to Tring, in order to enable the directors of the Namur and Liege company to form an opinion of her working. Among those who went down were Mr. A. Spottiswoode, the chairman of the company; Mr. J. Gurney, the deputy chairman; Mr. A. Grey and Mr. F. Reynolds, two of the directors; the secretary, Mr. Cary; the engineer, Mr. G. Rennie, the patentee, Mr. Crampton; and the manufacturer, Mr. Tulk.

We look with anxiety for the working of Mr. Crampton's engine, when it shall have got into thorough running order.

**Atmospheric Railway.**—The atmospheric principle was tried yesterday for the first time. The piston carriage started from the Exeter station a little after 6 last evening. There were present Messrs. Samuda and Atkinson, the Atmospheric engineers, Mr. Magary, the resident engineer, Mr. Clark, the superintendent of the line, Mr. Marshall, the contractors' agent, Dr. Miller, Mr. Ralph Sanders, etc. The piston carriage was attended by a loco-

motive, which propelled to the pipe at starting. An exhaustion of 17 inches was readily obtained, 14 being a working pressure. Everything was found to answer exceedingly well. The carriage stopped at the St. Thomas's station with great precision. It was perfectly under command, and the oscillation was comparatively nothing to that of the locomotive. The experiment was very cautiously effected, in consequence of the pipes never having yet been thoroughly gone thro'. But it fully answered the expectations of all concerned, and must have been very gratifying to the patentee, Mr. Samuda, and to Mr. Atkinson, who has had the chief management of the preparations. The inventor, Mr. Olegg, was not present, we believe. He ought not to be forgotten in the triumph of a principle which has cost him years of labor and anxiety, though younger and more influential hands have taken the burthen and the glory of its full achievement.—*Western Times*.

**India Rubber Buffer Springs.**—An application of what is termed "Vulcanized India rubber" to the springs of buffers of railway carriages has been patented by Messrs. Fuller and De Bergue, and is in use in some of the carriages of the Great Western railway and on the Eastern Counties railway. The invention appears to be important, and it is stated to have been examined and approved of by Messrs. R. Stephenson, W. Cubit, Brunel, and other competent judges. The buffer springs of Messrs. Fuller combine simplicity with security; and the inventors contend that they are superior to the steel springs usually employed in buffers, because they are at their commencement more elastic and more easily acted upon; the power of their resistance, after yielding to a certain extent, increases in such a ratio as to prevent the possibility of the buffer head being brought to a dead hard stop, and consequently in cases of collision results less dangerous than those which generally ensue can be anticipated. Their lightness, and the facility with which their power may be regulated, are also important advantages. It is difficult, without an experienced judgment, and the practical knowledge of engineering, to give an opinion on such an invention as this that shall be either valuable or influential, but it may be of benefit to the public to call their attention to it.

**Tires "without welding," for Locomotives.**—The following suggestions, elicited by the opinions expressed by Messrs. Gooch and Braithwaite, at the inquest as to the cause of the late fatal accident on the Great Western, deserve attention:—"I have for several years given considerable attention to the subject of the manufacture of iron for locomotive carriages and other purposes; and I am convinced, from partial experience, that tires for locomotive carriages should be composed of one entire circle WITHOUT WELDING. These tires should be constructed from scrap iron, which, after reworking, forms a material superior in texture and strength to the quality of iron now used, while the cost of manufacture would not exceed the present method.—As I am in possession of the plan by which such an improved mode of tire can be con-

structed, I shall feel obliged if you will give these imperfect remarks a place in your valuable columns, as I am thoroughly satisfied that if the suggestion to which I have alluded be generally adopted in the manufacture of wheels for locomotive carriages, similar accidents to that which lately occurred on the Great Western may be prevented, and thus a great loss of human life be spared.—Geo. Soorr, Engineer: *Bouverie street, Feb. 16.*" We are informed also, that Mr. W. Exall, of Katesgrove iron works, Reading, has turned his attention to this subject, and succeeded so satisfactorily, as to be induced to secure his invention by a patent, which he anticipates the recent accidents will bring into general use. We shall readily afford both parties space for a description of their relative plans.

**Smelting Copper.**—Mr. T. Bell, of the Don Alkali Works, South Shields, has recently patented an improved process for obtaining sulphuric acid from the ores of copper during the roasting of the ore. For this purpose the ore in powder is placed on the shelves or a common roasting furnace, such as is in general use in the smelting of copper ores. To this furnace a roasting kiln is attached by a flue, which enters 2 ft. from the bottom, and is from 150 ft. to 200 ft. in length; in the kiln copper ore is also put, but in lumps near the end of the flue there is a jet of steam, which, adding to the draught of furnace, coke, anthracite coal, or charcoal, may be used instead of bituminous coal. The top of the kiln is arched over, and a flue passes through the top into a vitriol chamber. Near that end of the flue which enters the vitriol chamber, the steam jet passes into the centre of the flue. During the roasting of the ore sulphurous acid is formed, which, in passing through the flues is mixed with the aqueous vapor, and partly becomes condensed into sulphuric acid; in this state it passes into the vitriol chamber, and collects on the floor; at the same time, the uncondensed sulphurous acid gas and steam, on passing into the vitriol chamber, meet with the nitrous acid gas, produced by acting on saltpetre, or nitrate of soda, by strong sulphuric acid. But still, much of the sulphuric acid escapes condensation; this is afterwards condensed in columns of coke, previously exhausted as described in a former patent (dated November 3, 1845, for improvements in the manufacture of sulphuric acid), or by means of a high chimney. The claims are for the use of coke or charcoal in obtaining sulphuric acid from copper ores, in the manner above described; and also for using the columns of coke in combination with exhaustion, in the manner above described.

**Experiments on the Atmospheric Railway System in France.**—A few days ago experiments were made on the Paris and St. Germain Atmospheric line, between the stations at the wood of Vesinet, and the park at the chateau, in the presence of several members of the legislature, engineers, and others interested in the atmospheric system. A train containing the visitors, left the Paris station, Rue St. Lazare, at a quarter past 11 o'clock,

and arrived at Vesinet at 40 minutes past. The signal to set in motion the stationary engine at St. Germain was sent by the electric telegraph, laid down under the direction of M. Breguet. A vacuum of 32 centimetres were then effected in 2 minutes 30 sec.; and a train composed of five carriages, besides that containing the piston, started off with speed. The ascent to St. Germain was accomplished in four minutes, the average speed being therefore 33 kilometres per hour. The vacuum increased during that time from 32 to 43 centimetres. Five other trains successively ran at intervals of three-quarters of an hour, the number of carriages being increased every time until it reached 11, exclusive of the piston carriage. Every time the results grew more and more favorable. The last train, the heaviest of all, and the weight of which was 54 tons, performed the ascent in no more than four minutes, under the influence of a vacuum varying from 32 to 65 centimetres. The vacuum of 32 centimetres was always obtained in two minutes and a half, with but one machine. The four pneumatic cylinders were worked for only two minutes, and that solely when the train began to ascend the gradients of 32 and 36 millimetres, which terminate the line; trains of 9 or 10 carriages ascended in three minutes and a half, under the influence of a vacuum varying between 35 and 50, and even 65 centimetres. This last degree has never been surpassed in England. The next experiments will take place before the commission appointed by the Minister of Public Works, to present a report on the atmospheric system.

**Causes of Railway Accidents.**—The following letter, from our esteemed correspondent, "Nauticus," appeared in the *Times* of Thursday: "In your account of the fatal accident on the Great Western, it is evident that the direct cause of this accident was the insufficient manner in which the tire of the driving wheel was secured 'to the ring of it;' the only security being that of the tenacious grips acquired by the iron in cooling, caused by the contraction of the metal, it being 'chilled' on to the ring of the wheel, 'just as in the construction of an ordinary wooden wheel.' It appears that Mr. Gooch has a patent for this mode of constructing the tire of railway carriage wheels. Now, I think you will agree with me, that Mr. Gooch in proposing, and Mr. Brunel in giving his sanction to, this mode of securing the tires to the wheels of railway carriages, have, to use the mildest term, acted indiscreetly, and without giving the matter proper consideration; because the only security given to the tire to retain its position firmly on the 'ring of the wheel,' is obtained, as I have just stated, by its contraction in cooling; and when the wheel is rapidly progressing along the rail, great heat is generated by the friction between them; therefore the tire again expands, and, consequently, the firmness of the grip with which it embraces the ring of the wheel is relaxed, the too certain result being that, on any oscillation occurring to create a lateral thrust on to the flange, the position of the tire on the ring of the wheel is changed, and the fric-

tion thus much increased causes greater heat and expansion of the tire, which soon completely loses its hold on the wheel; and so arise accidents similar to the one now under consideration. I send these remarks in hope of being able to call the attention of engineers to the necessity of taking into consideration all the consequences of the tendencies of the laws brought into operation by the rapidity of the movements communicated to the locomotives and the different parts of which they are composed; because as the velocity of railway locomotion is increased, it becomes more and more necessary to provide against the influences of the concomitant attributes called into existence by this rapidity of motion. I believe this is not the first accident on the Great Western caused by the tire coming off the wheel, nor will it be the last, so long as Mr. Gouch's patent manner of securing the tire to the wheel is pursued."

**The Iron Trade.**—Seven boats are now engaged regularly in bringing up pig iron from Bolton to Lincoln, for the London and York railway: 1000 tons of iron have reached Lincoln, and are conveyed to an iron foundry there, belonging to the London and York railway company. This foundry was built on land which the London and York company, in December, 1845, gave notice they should require; but the foundry was built in spite of the notice, and the projectors anticipated a rich harvest. However, the company have paid no more than the actual cost of the workmanship, and they have set to work to enlarge the foundry. An eminent manager and superintendent is engaged, and it is said that all the girders and chains for the whole length of line will be cast at the Lincoln foundry. This will be a great saving to the company, and forms a striking contrast to the lavish manner in which they expended their funds during the progress of the bills through Parliament.

#### Explosion of Dupont's Powder Mill.

Last week, an awful explosion occurred in the extensive powder mills of Mr. Dupont, situated on the Brandywine, which caused the almost instant death of eighteen hands, besides severely, if not fatally wounding a number of others. The cause of the catastrophe is not stated, nor the names of the killed and wounded ascertained. The destruction of property is represented as very great. This establishment has been blown up several times within a few years past, attended in many instances with loss of life.

#### Baltimore and Ohio Railroad.

We learn, says the Baltimore Patriot, that at a meeting of the board of directors of the Baltimore and Ohio railroad company, on Wednesday, the President was authorized to engage in a final conference with the authorities of the city of Wheeling, and to enter upon an examination of the late law of the Virginia Legislature, granting the right of way through that State, in order to ascertain the practicability of obtaining such present or prospective modifications of the law as would warrant the company in commencing the immediate extension of the road. The President was also authorized to call to his assistance the most eminent counsel in that State and in Virginia, as well as a committee of such gentlemen as he may desire to aid him.

#### Commutation on Railroads.

This subject has been often alluded to in the Journal, as one well calculated to advance the interest of railroad companies; yet comparatively few have adopted the system.

The New York and Erie company have, as we learn, introduced the system in a form well calculated to increase their travel. It is explained in the following communication, and regulations of the company, which we give in full for the consideration of other companies, which may profit by the adoption of the system. The writer of the following communication says:

"The subject of commutation for travel on railways was alluded to in your Journal of 10th instant, and it is a subject worthy of consideration.

"The selling of season tickets to travel when the purchaser pleases, operates unequally, and does not probably increase the revenues of the road, as it is evident that the privilege is worth much more to some than it can be to others, whose business does not require as much travel, and as the price must be uniform, it therefore must be very unequal. The plan adopted on the New York and Erie railroad has been in operation for one year, and seems to work well. It has only been adopted between the city of New York and various points on the road where the customers reside, and not from place to place on the road; this, which has been thought of would be too complicated, and it is thought cannot be adopted with advantage. The plan which has been in use, and is continued, is to issue tickets in quantities, to be used only by parties named at the time of purchase, and under certain conditions, a copy of which I send herewith. The scale of prices is as follows:

For 12 Tickets,	25 per cent. discount.
For 24 "	33 1/2 " "
For 36 "	40 " "
For 48 " (or more)	50 " "

"The tickets are by agreement good for one year from the date of issue, and each one is good for one ride, and are collected on the cars as are other tickets."

#### No. 1.

On the front the ticket reads thus,

NEW YORK AND ERIE RAILROAD.

No. .... of Tickets sold to

Mr. ....

and is good for one passage between New

York and. ....

Ticket Agent.

#### No. 2.

On the back, thus,

This ticket is good within one  
year from ..... 184

#### PACKAGES OF TICKETS.

Not transferable, and good for any day, within one year from their date, for passages between New York and the several places herein named, will be sold at the prices and under the regulations following, to wit:

Miles from N. York,	67	77	74	70	65	63	60	57	52	48	45	42
	Ottsville,	Middletown,	N. Hampton,	Goshen,	Chester,	Oxford and Montez,	Turner,	Montez wks,	St. Louisburg,	Ramapo wks,	Suffern,	
For 1 Dozen Tickets	\$13 50	\$11 25	\$10 68	\$10 12	\$9 56	\$9 00	\$8 43	\$7 87	\$6 75	\$6 30	\$5 40	
For 2 Dozen Tickets	24 00	20 00	19 00	18 00	17 00	16 00	15 00	14 00	12 00	11 20	9 60	
For 3 Dozen Tickets	39 40	27 00	25 65	24 30	23 95	21 60	20 25	18 90	16 20	14 12	12 96	
For 4 Dozen Tickets	36 00	30 00	28 50	27 00	25 50	24 00	22 50	21 00	18 00	16 80	14 40	

#### REGULATIONS.

- 1st. Payment in advance will in all cases be required.
- 2d. No person, except those named in writing at the time of the purchase of these tickets, will be permitted to use them.
- 3d. No names will be accepted or tickets issued for any person except the purchaser, his immediate family and his business firm, clerks, etc.
- 4th. Persons using these tickets, will deliver them to the conductor when called for, with their names written upon the margin.
- 5th. Every person upon purchasing a package, will be required to sign a receipt in the following form:

Received from the NEW YORK AND ERIE RAILROAD COMPANY, by the hands of

AGENT,

Tickets for passages

Between NEW YORK and

for the use of myself

for which I have paid the said agent the sum of

Dollars,

and in consideration of the reduced price thereof, I hereby agree that these tickets shall be used in strict conformity to the above regulations, or otherwise to forfeit the right of passage under them.

Dated,

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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## AMERICAN RAILROAD JOURNAL.

Published by D. K. MINOR, 105 Chestnut St., Philadelphia.

Saturday, April 24, 1847.

### Massachusetts Annual Reports.

We give, this week, another of the Massachusetts Annual Reports.

### Table of Railroads—Corrections.

MONTGOMERY, ALA., April 3, 1847.

Sir—In your late list of railroads, you have given our road a bar  $\frac{1}{2}$  by 2 inches—it should be  $\frac{1}{2}$  by 2 $\frac{1}{2}$ . Our maximum grade is 52 feet—only one grade of that acclivity—the general maximum is 42 feet.—On the extension, beyond Moore's, we shall use a modification of the flat bar, having  $\frac{1}{2}$  inch thickness, and weighing 40 tons to the mile. We expect to open the road for use to Auburn in July. The length will then be 60 miles.

Respectfully yours,

L. P. GRANT,

Engineer and Sup. M. and W. P. R. R.

Will others do likewise? This is the way to make the table correct, and the only way for us to get at the present state of many of the roads.

PORTLAND, April 14, 1847.

To the Editor of the R. R. Journal:

Sir—I take the liberty to send you the following items for your Table of Railroads, as corrections:

*Atlantic and St. Lawrence Railroad.*—Track 5 feet 6 inches wide (i. e. gauge.) Kind of rail  $\Omega$  (i. e. bridge rail. Weight of rail, 63 lbs. to the lineal yard. Highest grade per mile, 45 feet.

Your table is a most valuable document. I have posted it up in a conspicuous place in our office. I hope, before you have occasion to publish another edition, we may be able to furnish you a better account of ourselves.

With great respect sir,

Your very obedient servant,

WM. P. PREBLE.

We hope to be able to continue these corrections, until we hear from every road in the country.

### Bridging the Ohio.

The Ohio is in a fair way to be bridged, we hear, at Wheeling, Va. One of the papers of that city, of a late date, says that circumstances are such as to give us full assurance that the company will be formed under the charter of last winter to erect a bridge over the Ohio, the stock taken, and the contract made at as early a day as possible, probably during the present summer. The stock is \$200,000.

### Large Iron Shafts.

The Louisville Democrat says that, at Yeatman & Shields' foundry, in that city, there are two iron shafts just cast for the steamboat Magnolia, weighing each 11 $\frac{1}{2}$  tons—each 20 feet 2 inches long. The journals measure 13 and 17 inches. The shafts were perfect, and made in three days from the time the order was received; the patterns, of course, be-

ing made in this time. They are the largest shafts ever cast in that city.

### Rutland Road.

The work upon this road, says the Burlington Free press, is steadily advancing. It is understood from the contractor, that several pits have been sunk at the crossing of the creek in Shelburne, preparatory to the commencement of the work of constructing the piers for the bridge at that place.

We are glad to learn that, by an arrangement between the parties, Messrs. Chamberlain, Worrall and Walker, have become partners with Messrs. J. Bradley and T. F. Strong, in the contract for the construction of the road from Burlington to Brandon. Messrs. Chamberlain & Co. have been engaged on the public works in Pennsylvania, and are now constructing the ship canals on the St. Lawrence in Canada. Their reputation, as accomplished and thorough-going business men, and their well-known experience and ability, afford the best guaranty for the speedy and successful prosecution of the work on the northern division of the Rutland road.

A contract has been entered into with Mr. Horace Gray of Boston, for the rails for the whole road from Bellows Falls to Burlington. Mr. Gray takes stock to the amount of \$140,000, in addition to his subscription of \$20,000, and furnishes rails (of 60 lbs. to the yard) on terms more favorable, as we are informed, than have heretofore been made with him.

The assessment of 5 per cent. on both the Boston and the country stock, has been promptly paid into the treasury, and the work will be prosecuted with all practicable despatch.

This goes to show that the opinions entertained and expressed in the Journal by us in the early agitation of this line of road was correct. We then said, frequently, that this road would surely be constructed—that Boston would do it, at her own cost, if the people on its line did not come up to the mark, by way of securing the trade of Western Vermont. It is of too much value, when taken in connection with Lake Champlain, to be lost, when so small an outlay will open so direct and ready a communication.

### Hamilton Railroad.

The citizens of the eastern part of Indiana, says a late number of the Cincinnati Gazette, are on the alert, to raise the means for constructing a railway to connect Cincinnati with Indianapolis. In New Richmond a good spirit prevails. They look upon it as certain that the road to Hamilton will be made, and are taking active measures to connect themselves with it, and to push the line forward through the State to Terra Haute, under the charter granted by the Legislature of that State.

The citizens of Darke county have called a public meeting, to be held at Greenville, on the 3d proximo, to devise the way of connecting that town with Eaton, Hamilton, and Cincinnati.

In Preble county also, the subject of the road from Hamilton, on through Eaton to Indiana, is under discussion, and measures are contemplated to further the object.

It behooves Cincinnati, continues the Gazette, to look to the matter in season, in order to secure the road through Indianapolis, to the northwest, and also to St. Louis. The road to Hamilton, must and will be made; but whether it is to be done soon, or to be postponed to a more convenient season—to some future time, depends upon our citizens. If we come forward and take a due portion of the stock, it may be all graded the present season. The stock can be raised if the property holders in the western and northwestern parts of the city take hold of it as

men should do, having in view a public advantage as well as their own private interest. The gain to these gentlemen is certain, and the amount must be large. Their interest, if nothing else, should prompt them to exert themselves to push the work forward, and to set good examples in the way of liberal subscriptions.

We notice that the proposed company to construct a railway from Dayton through Lebanon to the Little Miami road, is about to be organized. A meeting has been called to elect directors.

### Railroad Intelligence.

The Danvers railroad to Boston, which has for so long a time been an obstinately contested question, and which has taken up so much of the time of the present and past Massachusetts Legislature, is likely to be brought to a conclusion. It is rumored that the Railroad Committee to which the subject has been committed, have decided to report in favor of the South Reading route, which bears the name of the Salem and Lowell railroad, giving to the Danvers petitioners an entrance into Boston through the Boston and Maine railroad, though not so straight and short as by the route through Malden. If this report is correct, if the committee's bill shall pass through the Legislature, and if the road shall be built, a most exciting subject of railroad legislation will be taken away, and it is to be hoped that the compromise will be acceptable to all the parties.

We understand, says the St. Johnsbury Caledonian, that the engineers of the Connecticut and Passumpsic Rivers railroad, have been engaged for the last two or three weeks in completing the locating survey of the White River division, and that the whole line will be ready for contracting by the 1st of May as far as Wells river. It is understood that this portion of the road is to be put under contract as soon as the necessary surveys are completed, and the work prosecuted with a view to its completion in the summer of 1848.

We learn from the Portland Argus, that the amount of stock taken by the citizens of Portland and vicinity in the Androscoggin and Kennebec road, is something rising \$110,000; on which there has been paid into the treasury in cash, something rising \$5,500—being 5 per cent. on the stock subscribed for. At the meeting of the Directors last week, it was ascertained that the preliminary surveys would be completed in the course of the week. The business of the company is placed upon a solid basis, and is progressing as rapidly as circumstances will admit.

The N. Y. Commercial Advertiser says that the stock of the Watertown and Rome, N. Y., railroad has been taken, and adds:—This will be another important link to the eastern seaboard, and will add in no small degree to the value of the Hudson railroad. Our Boston friends are pushing on the line to Ogdensburg, which will be another link to their immense chain of railroads; while they are showing such activity, New Yorkers should be awake to their own interests.

Within the last two years the passengers transported between New York and Boston were conveyed at an average cost, for first class passengers, not exceeding a cent and a half per mile. So says the Boston Daily Advertiser.

The Housatonic railroad company have declared a dividend of four per cent. on the preferred capital.

At the last advices, the workmen had nearly completed their labors on the Paris and Havre railway, and it was expected that the commission of roads and bridges charged with inspecting the entire railway and with making a final report on the state of

the work, would enter upon their duties on the 4th of March. There was every expectation of a favorable report, and that no obstacle would delay active operations, which would commence simultaneously for the conveyance of persons and property, the company being ready at all points, and wanting nothing but authority to proceed. The inauguration, it was thought, would take place March 15th, or at farthest before the end of the month.

The Portsmouth Journal says—We have much pleasure in being able to announce that the balance of the stock required to be subscribed before commencing the first section of the road to extend to New Market has been taken up—the directors having assumed the balance, (although they were before the largest subscribers) to enable them to commence the work forthwith. We also learn that an experienced and skilful engineer, Mr. Hall, is now engaged in making a re-examination and survey of the line as laid out to New Market; and that as soon as the road is finally located, probably in the course of next week, the directors will be ready to enter into contracts for grading the road. The first assessment on the shares has been made payable on or before the 26th inst.; interest to be allowed from the day of payment, and some have already paid their assessments.

The Columbus (Geo.) Times of the 22d ult., says, We learn that engineers of the Macon and Western railway, are surveying the route from Barnesville to Flint river; and that that go ahead company intend to complete the new road in a year. If so, Columbus must suffer in her trade every day that our end of the line remains unconnected with that at the Flint.

The Directors of the Atlantic and St. Lawrence road have ordered the location to the South Village in Paris. They have also ordered the section between Auburn and Mechanic Falls to be put under contract for grading forthwith.

Our Portland friends, says the Paris Democrat, anticipate that the "iron horse" will come snorting into their beautiful city from the northeast, as early as November next, and we have little doubt their anticipations will be realized. Success to them.

It was stated by S. S. Lewis, Esq., says the Boston Bee, at a late meeting of the company, to one of the legislative railroad committees, that the plan of constructing a railroad partly around the metropolis, so as to connect all the interior railroads with deep water at East Boston—was so far matured that he had already received the promise of subscription for a large part of the capital stock, \$1,200,000. The Chelsea Branch railroad is a part of this line, and the Eastern railroad has applied for leave to subscribe for a portion of its stock. We published an article in relation to this matter from a Lowell paper, some weeks since. It would seem from the above, that there is considerable probability of the accomplishment, eventually, of such an enterprise. The project goes to show the great principle of improvement, lately brought out so clearly, that the interior demands connexion, not merely with commercial towns, but with the sea itself. Deep water is almost as necessary a terminus of a great railroad, at one end, as a productive and populous country is at the other.

The railroad spirit shows no abatement, says a late Newark paper, in the bills and villages on the Delaware. Four public meetings are advertised to be held in different villages of Warren county, between this day and Monday, to consider measures for making a railroad communication between Belvidere and the sea board.

#### Another "Mammoth" for the Sound.

A magnificent new boat, to be called the "BAY STATE," is now in course of completion, in New York, intended to ply on the new route to Boston, via Fall river. She was constructed by Messrs. Lawrence & Sneyden, under the immediate superintendence of J. J. Comstock, formerly the commander of the Massachusetts, and is 300 feet in length, 45 feet beam, with 15 feet depth of hold; her cylinder is 76 inches, 12 feet stroke; diameter of wheel, 43 feet; 1,700 tons burthen and 1,500 horse power. Her engine and boilers are from the foundry of James P. Allaire. She is furnished with 50 state rooms and 500 berths, fitted up in splendid style, and the safety of the passengers is secured by extra life boats and patent life preservers, besides having three masts, on which she can use her canvass when necessary. This floating palace will take her place on the line about the 1st of May, under the command of Capt. Comstock, whose reputation as a skilful navigator and for gentlemanly deportment, is well known to the travelling community. The Massachusetts will run on alternate days with this boat—which is said to be a splendid affair—and promises to be one of the finest ever built in this country.

#### Plank Roads.

We published, in a recent number of the Journal, a well written article from the pen of JAMES CULL, Esq., Civil Engineer, of Kingston, Canada West, in which he promised to give us another article, treating at length of Plank roads—and we now have the pleasure of acknowledging the receipt of the article alluded to, which we give at length in this number, in the hope that it may be copied into many of our exchange papers, for the benefit of thousands who cannot have the advantage of railroads. They must be eminently useful to villages, and in the new country where the soil is deep and soft—and not, comparatively, expensive.

We desire to call the special attention of our readers to Mr. Cull's remarks on the subject, and to him as a suitable person to be employed in their construction, as he has evidently both science and practice in this almost new science of road-making.

For the American Railroad Journal.

**Plank Roads.**—The adoption of plank and timber roads was first recommended by the writer of this article, accompanied with models, and laid before the Canadian Provincial Parliament, in the year 1833.

The models were of three descriptions.

First. The common plank road, 14 feet wide and 2 inches thick, laid upon five longitudinal sleepers.

Second. A plank road 28 feet wide, and which combined the two objects—of a plank road for ordinary purposes, and a railroad, the rail being of hard wood, with or without an iron rail.

Third. A timber road made with logs, as will be hereafter described. Having been employed upon the Liverpool and Manchester railroad in England, and which was just completed, and having had frequent opportunities of testing the value and durability of timber railroads, called tram roads, I had necessarily acquired a good deal of information upon the comparative advantages and disadvantages of both these descriptions of roads.

The ordinary plank road was treated with everything but respect by the Canadian Legislature at that time of day. It would rot, or wear out in three years. It would be burnt up. The plank would be stolen. The expense would ruin the country; and the whole thing was treated as the fanciful production of a speculative mind—and not a few of the wise men said the old roads had been good enough for their

fathers, and why were they not good enough for them? No effort was made to try the value of plank roads till the summer of 1835, when three or four miles were laid on the road between Toronto and Kingston, and paid for out of a loan granted by Parliament to make a Macadamized road.

It was soon found that none of the anticipated objections were realized. Instead of wearing out or decaying in three years, no repairs were made for upwards of seven years, and even then the plank had lost by wear only about three-fourths of an inch, not a foot of it had ever been burnt or stolen; and as little grading was necessary, in consequence of the level state of the country, instead of costing upwards of £2000 per mile, which the first four miles of Macadamized road had cost, the plank road was made for between £500 and £600 for the timber portion of it, and about £150 for the grading, ditching, etc. This was the first experiment of a plank road.

The plank was partly pine, partly hemlock, and partly oak. The first four miles of Macadamized road out of Toronto, which had cost in its original construction upwards of £2000 per mile, had also cost an enormous sum in repair, nearly as much as it cost originally, in four years, in consequence of the commissioners having employed one of the foremen of the engineers, who made the Younge street road—with a view of saving £24 per day in salary—a man who was ignorant of the science of either draining or road making; the consequence of which was, that the road went down in many places, and they were actually obliged to plank over it—exhibiting, if anything ever did, the old adage of "penny wise and pound foolish."

The writer had frequent opportunities of examining these few miles of plank road, and so completely caulked were the joints, by the pressing into them by the action of the wheels and the feet of the horses, the small chips which were torn off, together with the dropping from the horses, etc., that a strong iron bar was broken in taking up the boards to examine them. The only fastening they had was one, or in a wide plank two 6-inch spikes at each end of the plank. The scantling for the sleepers, which were of the same material with the plank, was 6 by 8. The road bed was made as solid as possible, and the earth was rammed in between the sleepers; and experience has since proved, that on this being effectually done, so that the plank rested firmly on the earth, as well as on the ground joists, depended the protection from decay of both, and the absence of springing, by which the wear is much increased, a fact fully proved by the rapidity with which plank on a bridge wears out, compared with that of a firmly-laid plank road: although it must not be forgotten that from bridges being generally elevated, the increased power of the horses to surmount the elevation, necessarily produces increased wear and tear, as well as the spring or deflection, which is produced by the elasticity of the frame work in bridges.

The plank was laid across the road, and was, as before stated, 16 feet long.

**Remarks.**—The great requisites in the construction of plank roads, are as follows:

First. Sound timber, of the proper age, and cut at the proper season of the year. Timber, like everything else, can only endure a certain length of time, and like everything else, also, has its period of growth, maturity and natural decay.

Too little attention is paid to this fact in Canada, or, more properly speaking, no attention at all is given to the subject—if it be plank of given dimensions it is quite enough.

The cutting timber at a proper time of the year, (perhaps January is the best time,) is even more important than its age; it has been well ascertained that timber, cut with the sap up in it, will decay in less than half the time that it will when cut in winter; nor can this be difficult of accounting for; it is the sap which contains the fermentable matter, and fermentation is the first step to decomposition—hence the value of those preserving processes called kyanizing, and other processes of inserting into the sap a substance which acts upon one of its constituent parts, which bears a strict analogy to albumen, which, when decomposed by corrosive sublimate, sulphate of copper, and many other substances, becomes indecomposable, and renders the sappy portions of timber as durable as the spine, and greatly adds to the durability of the latter. It is believed that it is good economy to submit the plank intended for roads to these processes, when it will be found to endure, without repair, for ten, or even, twelve years, or probably a longer period.

The next thing of importance in the construction of plank roads, is strict attention to the laying both the longitudinal timbers, as well as the plank, perfectly solid, so as to prevent springing and deflection. A moment's consideration will show that a plank laying loosely on the ground, springing under the weight of horses or wheels, will wear out in half the time that one laying solidly embedded will do; this is caused in two ways, the wear is naturally greater by the double action of the plank and the horses feet—but it is also caused by the increased traction which is produced by plank laying loosely, over that which is produced when they are perfectly firm and non-elastic; in the former case, where the road yields to the wheel, and bends beneath it, the carriage is always as it were going up hill; that is, if the plank be one foot wide, and it deflects or bends one-eighth of an inch, the wheel has to surmount an obstacle equal to the rise of the one-eighth of an inch in six inches, or 1 in 48, and so in any other proportion, whether greater or less.

It is therefore of the greatest importance, with a view to the durability of the plank, as well as to the ease with which animals travel on plank roads, that they should lay as solidly as possible, not only on the sleepers, but also that the earth between the sleepers should be rammed, or made otherwise as hard as possible, and that the plank should bear solidly upon it. One remarkable fact has presented itself, as it regards the traction on plank roads, and which fully proves the truth of the foregoing observations; it is found that the "legs" of horses which travel on plank roads, give out much sooner than they do on Macadamized roads; their "FEET" suffer most especially with injudicious shoeing on the latter, but the muscles of the legs are evidently more tired and injured on the former, a tolerably conclusive proof, that however plank roads may be more agreeable to the traveller than Macadamized roads, they are less favorable to animal power.

**Blinding.**—It has been the fashion in Canada, on some roads, to strew sand or very fine gravel on plank roads, two or three inches thick. Experience and observation have convinced me, that while it is an useless expense, it is injurious to the road in more ways than one, it increases the traction, and consequently adds to the wear of the plank. Small stones are necessarily forced into the plank by the weight of the horses and by the action of the wheels, into these cavities the water finds its way to the centre of the plank, and causes incipient decay; it spoils the sleighing in winter, and produces clouds of dust in summer.

The first plank roads were never blinded, and they have assuredly proved the most durable.

Experience, I believe, has fully proved that the best blinding is the small chips taken off by the shoes of the horses, and by the action of the wheels, together with the droppings from animals, which sufficiently saves the wear of plank without the disadvantages of either clay, sand or gravel. With a view to prevent these lighter substances from being washed off the road by heavy rains, the plank should be laid as nearly level as possible; and it will be found that roads thus made will give the earliest and latest, as well as the best sleighing, and be more durable than if laid in any other way.

**Widths of Plank Roads.**—Various experiments have been tried as to the most convenient width of plank roads; we have made them with plank 16, 14 and 12 feet long. Upon the whole, taking economy and utility into the question, I am of opinion that 12 feet is the best width on ordinary roads, a few miles distant from cities and towns; a common wagon scarcely occupies 6 feet, and we have found that two carriages can pass each other very well on a plank road 12 feet wide, but a longitudinal string-piece, of hard wood, down the middle of the road, about six inches high, treenailed down to the sleepers, is indispensable; this string-piece is not continuous, but has a convenient number of breaks or spaces to enable carriages to pass from one side to the other, if necessary. It is found by experience, that the earth which forms the abutments to plank roads, if properly laid, becomes so firm and solid, that it does not yield in any material degree to even a heavily loaded wagon, by the outside wheels merely once going on it; and it must be recollected that the chances are a thousand to one, or more, of two wagons meeting exactly in the same spot, so as to require a repetition of breaking out twice in the same track.

If the road be not twelve feet wide, eight feet is as good as any greater width, especially on lines where the amount of travel is not great, such a road will be found to be invaluable, and will cost as little as any kind of road which can be made.

**Method of Laying the Plank.**—The first impression with respect to the way the plank should be laid, was in favor of laying it longitudinally, for the following reason. If the finger nail be passed over a pine board, planed ever so smoothly, across the grain, it will obviously present a rougher surface than if passed lengthwise with the grain, and doubtless, so far as wear is concerned, fewer chips would be taken up by horses feet, if laid lengthwise, than if laid across the road. The objection is of two kinds:—first, that unless the joists are laid very close, a considerable spring or deflection will take place; and, secondly, it has been found that horses smoothly shot will slip upon them when so laid; besides which, if the horses shoes wear the plank less, the wheels will wear it more; under all circumstances, it is believed that the crosswise is better than the lengthwise.

With a view to make the twelve feet plank answer the purpose without waste, it was suggested to lay the plank diagonally; this was tried, and found to be disadvantageous, as will easily appear on examination.

The fact is, that on planks laid diagonally, the two wheels of a carriage are never on the same plank at the same time, and the consequence is, that the pressure on one side the plank, without a corresponding pressure on the other side, produces a spring which is felt by the spike by which the plank is fastened, it soon works loose, and the head of the spike

comes through the plank—all which circumstances are against a firm, unyielding and durable plank road.

**Sleepers.**—It has been suggested to lay plank roads on the natural soil without sleepers, or to lay them with only two outside sleepers. If the foregoing remarks are good for anything, doing either must be a failure. Where the attempt has been made, the writer has seen the water under the plank splashing up, by the weight of the horses, to his very girths—proof enough, that the traction upon such a road must be great, consequently increased wear and tear of the plank and a disadvantageous waste of the moving power.

The foregoing will communicate to your readers all the information which has been obtained from our experience in Canada on "PLANK" roads.

The second kind of plank roads submitted to the Provincial Parliament was constructed in the following manner: cross beams were to be laid at certain distances, proportioned to the weight to be carried on the road; in hard ground to be on blocks, and in deep soft soils upon piles; the blocks to consist of pieces of timber of a conical form, with the large end downwards, at least four feet deep, to be out of the reach of the frost; the piles to be driven till they would bear the required weight.

The cross beams to be provided with a shoulder within a foot of the ends against which the timber which constitutes the roadway should abut; through this a mortise should be cut, to receive a wedge for the purpose of driving the timber of the roadway close together, which timbers were to be laid lengthwise, to be of scantling 6 by 6. The centre part to be 16 feet wide, on which are to be driven the common carriages of the country; and on each side to be two wooden rails, nine inches deep and four inches wide, to consist of the hardest wood which can be obtained, to be placed at such distance apart as it shall be determined to have the gauges; between the rails are to be laid timbers the same as the roadway, 6 by 6, and the rails will consequently be three inches above the roadway.

The timbers constituting the road to be dowelled so as to form a mass of solid timber, and by being driven up by the wedges will bring the joints close together, and keep them so in case of shrinkage. It is believed that such a road will possess all the combined advantages of a good plank road together with a double railroad.

The third kind of road suggested, consisted of logs flatted, and sawed down the middle, laid with their rounded parts downwards, and the hewed edges abutting against each other, and dowelled, the whole resting on cross beams, similar to those designed for the foregoing road, and provided in the same manner with wedges to keep the whole compact. It has been considered that this will form the cheapest, the most durable and easily constructed road which has been proposed.

There is also another method of making a good, cheap and substantial road, of a very simple kind, which I have made to a considerable extent, and which has been greatly approved of; it consists of the common split fence rails, packed well together, and covered with three or four inches of clay taken from the side ditches; the rails should be well split out of straight grained timber; each rail will occupy about six inches, and will take consequently six rails to a lineal yard, they will embed themselves, and will last for eight or ten years, even if exposed to the wear and tear of very heavy loads.

I remain, Mr. Editor, your obedient servant,

JAMES CULL, Civil Engineer, etc.

## MASSACHUSETTS ANNUAL RAILROAD REPORTS.

Return of the Eastern Railroad Company, under the Act of April 16, 1846.

Capital stock.....	\$1,800,000
Increase of capital since last report.....	
Capital paid in, per last report.....	
Capital paid in since last report.....	
Total amount of capital stock paid in.....	1,800,000
Funded debt, per last report.....	500,000
Funded debt paid since last report.....	
Funded debt, increase of, since last report.....	
Total present amount of funded debt.....	500,000
Floating debt, per last report.....	
Floating debt paid since last report.....	
Floating debt, increase of since last report, [of which \$374,833 06 paid in account new stock].....	442,572 13
Total present amount of floating debt.....	515,133 14
Total present amount of funded and floating debt, [which includes \$101,778 34, renewal and sinking funds].....	1,015,133 14
Average rate of interest per annum on do, [5 per ct. on funded debt, 6 per cent. all others].....	
COST OF ROAD AND EQUIPMENT.	
For graduation and masonry, per last report.....	
For graduation and masonry, paid during the year	
Total amount expended for graduation and masonry	452,032 21
For bridges, per last report.....	
For bridges, paid during the past year.....	
Total amount expended for bridges.....	241,634 23
For superstructure, including iron, per last report..	
For superstructure, including iron, paid during the	
the past year.....	
Total amount expended for superstructure, includ-	
ing iron.....	707,035 03
For stations, buildings and fixtures, as per last re-	
port.....	
For stations, buildings and fixtures, paid during the	
past year.....	
Total amount expended for stations, buildings and	
fixtures.....	267,944 25
For land, land-damages and fences, per last report.	
For land, land-damages and fences, paid during the	
past year.....	
Total amount expended for land, land-damages and	
fences.....	202,260 47
For locomotives, per last report.....	
For locomotives, paid during the past year.....	
Total amount expended for locomotives.....	98,102 79
For passenger and baggage cars, per last report....	
For passenger and baggage cars, paid during the	
past year.....	
Total amount expended for passenger and baggage	
cars.....	71,160 65
For merchandize cars, per last report.....	
For merchandize cars, paid during the past year...	
Total amount expended for merchandize cars.....	31,736 03
Total amount expended for gravel and hand cars....	6,934 34
For engineering and other expenses, per last report.	
For engineering and other expenses, paid during the	
past year.....	
Total amount expended for engineering and other	
expenses.....	142,028 81
Total cost of road and equipment.....	2,220,868 81
CHARACTERISTICS OF ROAD.	
Length of road.....	38 miles 1063 feet.
Length of single track.....	38 " "
Length of double track.....	16 miles.
Length of branches owned by the company, stating	
whether they have a single or double track.....	3 miles, single track.
Weight of rail per yard in main road.....	46 pounds.
Weight of rail per yard in branch roads.....	46 " "
Maximum grade, with its length in main road....	40 feet.
Maximum grade, with its length in branch roads...	40 " "
Total rise and fall in main road, [total ascent 310,-	
969, descent 267,310].....	578,379 feet.
Total rise and fall in branch roads.....	
Shortest radius of curvature, with length of curve in	
main road.....	1146 ft.; length 1100 ft.
Shortest radius of curvature, with length of curve in	
branch roads.....	900 feet.
Total degrees of curvature in main road.....	450 feet.
Total degrees of curvature in branch roads.....	
Total length of straight line in main road.....	28 miles, 4980 feet.
Total length of straight lines in branches.....	1 mile; 3310 feet.
Aggregate length of truss bridges.....	
Whole length of road unfinished on both sides.....	
DOINGS DURING THE YEAR.	
Miles run by passenger trains.....	201,626
Miles run by freight trains.....	33,680
Miles run by other trains.....	17,746
Total miles run.....	253,052

Number of passengers carried in the cars.....	786,756
Number of passengers carried one mile.....	12,575,386
Number of tons of merchandize carried in the cars.	38,0134
Number of tons of merchandize carried one mile..	1,090,4424
Number of passengers carried one mile, to and from	
other roads.....	
Number of tons carried one mile, to and from other	
roads.....	
Average rate of speed adopted for passenger trains,	
including stops.....	21 miles.
Average rate of speed adopted for freight trains, in-	
cluding stops.....	15 miles.
Estimated weight in tons of passenger trains, includ-	
ing engine and tender, but not including passen-	
gers, hauled one mile.....	50 tons.
Estimated weight of merchandize trains, including	
engine and tender, but not including freight, haul-	
ed one mile.....	90 tons.

## EXPENDITURES FOR WORKING THE ROAD.

For repairs of road, maintenance of way, exclusive	
of wooden truss bridges and renewals of iron..	\$17,218 91
For repairs of truss bridges.....	11,711 07
For renewals of iron, including laying down.....	
For wages of switch-men, gate-keepers and flag-	
men.....	2,326 25
For removing ice and snow.....	
For repairs of fences, gates, houses for flag-men,	
gate-keepers, switch-men, tool-houses.....	176 59
Total for maintenance of way.....	21,432 82

## MOTIVE POWERS.

For repairs of locomotives.....	6,872 90
For new locomotives to cover depreciation.....	
For repairs of passenger cars.....	6,685 57
For new passenger cars to cover depreciation.....	
For repairs of merchandize cars.....	1,180 01
For new merchandize cars to cover depreciation...	
For repairs of gravel and other cars.....	39 60
Total for maintenance of motive power.....	14,778 08

## MISCELLANEOUS.

For fuel and oil.....	33,279 73
For salaries, wages and incidental expenses, charge-	
able to passenger department.....	23,124 87
For salaries, wages and incidental expenses, charge-	
able to freight department.....	2,680 04
For gratuities and damages.....	551 75
For taxes and insurance.....	
For ferries.....	8,413 26
For repairs of station building, aqueducts, fixtures,	
furniture.....	576 56
For interest.....	30,248 39
For amount paid other companies in tolls for pas-	
sengers and freight carried on their roads, specify-	
ing each company.....	
For amount paid other companies as rent for use of	
their roads, specifying each company.....	
For salaries of president, treasurer, superintendent,	
law expenses, office expenses of the above offices,	
and all other expenses not included in any of the	
foregoing items.....	27,819 07
	162,804 57

## INCOME DURING THE YEAR.

## For Passengers:

1. On the main road exclusively, including branch	
owned by company.....	310,061 14
2. To and from other roads, specifying what.....	

## For Freight:

1. On main road and branches owned by company.	41,271 06
2. To and from other connecting roads, [incidentals	
and profit and loss account.....	3,858 19
U. S. mails and rents.....	15,178 22

Total income..... 371,338 61

Net earnings after deducting expenses..... 208,534 04

## DIVIDENDS.

Surplus not divided, [\$8,253 07 paid for renewal	
fund, deducted.....	17,680 97
Surplus last year.....	112,723 28

Total surplus, [including sinking fund entire, and unexpended balance of renewal do. .... 130,403 25

## ESTIMATED DEPRECIATION BEYOND RENEWALS, VIZ: During the year.

Road and bridges.....	
Buildings.....	
Engines and cars.....	6,000 00

To the Honorable the Senate and House of Representatives, in General Court assembled:

The Directors of the Eastern railroad present their Eleventh Annual Report in the form prescribed by law. Some explanation may be required.

The capital is stated at.....\$1,800,000 00

During the past year an order was passed by the directors for the creation of 4590 new shares on the 1st of January, 1847, and made payable in assessments on the 1st July, 1st September, 1846, and January, 1847—and on them has been paid in, and is included in amount above stated of floating debt, 31st December, the sum of..... 374,833 06

It also includes balance of renewal and sinking funds..... 101,778 34

And, with the funded debt, \$500,000, and other liabilities, makes up the amount of..... 2,811,133 06

In the cost of the road and equipment is included the amount standing to construction account..... 2,220,868 81

And to property accounts..... 273,309 87

Which, together, show an actual expenditure of..... 2,494,268 68

The property having been estimated at its market value in 1843, which was about \$59,000 more than it had actually cost—thereby allowing that sum for deterioration.

Also expended for improvements not completed..... 51,763 33

Also expended for new tracks, do. do. 31,119 85

Also expended for Gloucester and Salisbury branches, do. do. 156,480 94

Also expended for railroad iron on hand 85,100 34

2,815,133 14

It should be stated that the above includes equipment for the Eastern railroad in New Hampshire, which has a capital of 4825 shares of \$100 each, which are entitled, as rent, to the same dividends as the stock in the Eastern railroad.

The two branches above named will be ready for the superstructure as soon as the season will permit.

No passenger has been injured in the cars during the year. In November, a woman, in attempting to get into the cars after they had started, fell on the track, and had her arm broken.

Two dividends, of \$1 per share, have been declared during the year, amounting, with the payments to the New Hampshire road, to \$182,600.

Respectfully submitted.—D. A. Neal, John Hooper, Isaiah Breed, Daniel Adams, John Bryant, Jr., John Eliot Thayer.

#### Baltimore and Pittsburgh.

The Pittsburgh Gazette of Monday week contains the following official account of the proceedings of the meeting held there on Saturday.

*Stockholders' Meeting.—Pittsburg and Connellsville Railroad Company.*

PITTSBURG, March 27, 1847.

In pursuance of adjournment, the stockholders of the Pittsburg and Connellsville railroad company met this day at 3 P. M., and were called to order by Wm. Eichbaum, Esq., chairman.

Thomas Bakewell, Esq., from the committee to report resolutions, submitted the following preamble and resolutions, which, upon due consideration, were unanimously adopted.

Whereas, A communication having been received from a committee of the Baltimore and Ohio railroad company, announcing its appointment and intention to visit this city for the purpose of renewing negotiations with this company, it is proper and becoming that said committee, before leaving home on the

business entrusted to them, should be made acquainted with the present disposition of the stockholders of this company. Therefore,

Resolved, That the stockholders of this company cannot perceive any thing in the late action of the stockholders of the B. & O. R. R. Co.—especially when taken in connection with the remarks of the President, when he says—"If the company were to decide upon one terminus, and direct its undivided resources toward the completion of one road to one terminus, and that were to be either Pittsburg or Wheeling, then Wheeling was, beyond question the desirable point," which would justify this company in revoking the resolution of the 25th February, or that holds out any reasonable prospect of a favorable issue of further negotiations while such counsels prevail.

Resolved, That if a substantive proposition shall have been made antecedent to the 25th of next April, duly authorized by the stockholders of that company, expressing their willingness to devote their undivided energies to the connection with this city by the shortest and cheapest route, then the President and Directors of this company are hereby authorized to reopen negotiations for the settlement of preliminaries, and report to a future meeting of the stockholders to be held for that purpose.

Resolved, That if the committee of the Baltimore and Ohio railroad company shall, under their instructions, visit this city, the President and Directors of this company are requested to tender them a hospitable reception, and afford them every facility of becoming acquainted with the manufacturing and commercial resources of this city, and the advantages it presents to their company, and to the city of Baltimore, as the point of connection with the Ohio river.

Resolved, N. B. Craig, Thos. Bakewell, Wm. Ebbs, Geo. Darsie and E. D. Gazzam, be a committee to communicate a copy of these proceedings to the committee of the Baltimore and Ohio railroad company, as expressive of the sentiments of this meeting.

Resolved, That when this meeting adjourns, it will adjourn to meet again on the 27th of April next, unless sooner convened, for the purpose of receiving the reports of the various committees, appointed at this meeting, and of considering such other business as may be brought before them.

WM. EICHBAUM, Chairman.

Edw'd Gazzam, Secretary.

#### ITEMS.

*The Mail Steamers.*—The Washington correspondent of the New York Herald has the following concerning the command of the government mail steamers for Liverpool:—It is understood that the Secretary of the Navy will require that each of the steamers of the Liverpool line shall be commanded by an officer of the navy, not under the grade of a lieutenant, otherwise he assumes that the four midshipmen set apart as watch officers in the bill to each ship, will be rather calculated to excite insubordination and mischief than the object of regular trips and naval regularity, and that they must have a superior officer on

board. The Liverpool line, therefore, in the respect of a commanding officer, will be subject to the same control as the line to Havana and New Orleans, and the collateral line from Havana to Chagres. The Congress bill does not exact a naval officer as commander to the Liverpool steamers, but the Secretary of the Navy will make it a condition to Mr. Collins' contract, and it will be so far an advantage to the contractor.

*Another Feather in the Cap of American Enterprise.*—Mr. Leon Lewenberg, of Williamsburg, has recently completed a large Refracting Telescope out of American materials. It has eight and a half inches aperture, and a focal distance of 14 feet. It is mounted on a convenient carriage, with all the necessary apparatus for direction, and its weight is half a ton. This instrument can be afforded for \$5000, and is pronounced by competent judges to be equal to those of Europe which cost \$10,000. A committee from the American Institute, are about to ask permission of the Common Council, to exhibit this telescope to the citizens of New York—for which purpose they will ask the privilege of erecting a temporary shed in the Park, opposite the City Hall. The aperture of this telescope is half an inch wider than that in the Cincinnati telescope; the cost of which was \$14,000.

*The Schuylkill Navigation.*—The water has been let into the Schuylkill Navigation, throughout its entire length, and it is thought the first boat of the season will leave Pottsville by about Monday next, freighted with coal. The amount of coal shipped from this region during the year 1846, was very little short of a million and a half of tons. The Schuylkill Navigation company were engaged last year in improving and widening their canal, so as to admit the passage of steamboats, and by the time it was completed, winter had set in, so that nearly, if not quite all the coal sent to market during that period went by railroad. In anticipation of the renewal of transportation on the canal, and its large capacity, the mining operations have been very much exhausted. A number of new mines have been opened, and expensive improvements added to those already in operation. We may, therefore, confidently predict a larger amount of shipments of coal for 1847 than any preceding year.—Pottsville Register, March 27.

*The Rutland Road.*—The work is going on at four points this side of Mount Holly, and the Mount Holly sections are to be commenced immediately. The sections in Brandon are progressing, and the remainder of the line, the President informs us, will be immediately put under contract. The Sullivan road is going forward. Our own road, the Cheshire, will now be pressed in every section, as the Directors of the Sullivan and Rutland (the latter the Cavendish at least) profess their determination to be ready to receive the cars as soon as they can arrive at Bellows Falls.—N. H. Sentinel.

*The Railroad.*—Our directors are busy at work doing everything that can be done to insure the earliest construction of the road.

Three corps of engineers have for some time been at work locating the road in different places on the line, and a fourth is being organized this week. Since these active movements, we understand the people in towns on the line are taking a renewed interest in encouraging the work. In Bowdoinham a spirited meeting was held last week, at which the subscription to the stock was encouragingly increased.—*Augusta Banner.*

**Chesapeake and Ohio Canal.**—We are happy to have it in our power to state that the speedy completion of this great work is now beyond a doubt. Hon. John Davis, Ex-Governor of Massachusetts, and now U. S. Senator from that State, together with his colleagues, Hon. Daniel Webster, Nathan Hale, Esq., of Boston, and other distinguished individuals, are now in Washington, for the purpose of consummating arrangements whereby the completion of the Chesapeake and Ohio canal is to be forthwith commenced in a manner that will forbid the possibility of another suspension. We understand these gentlemen constitute a commission on the part of the capitalists, who stand ready to advance the money required to accomplish the work.—*Wash. Union.*

**Railroad Accident.**—An accident occurred on the Boston and Maine railroad lately, at the Wilmington junction, by which, we are sorry to learn that several passengers received some slight bruises, also the baggage-master of the train. The accident was occasioned by the train from Portland overtaking the freight train, which was about backing off to give the passenger train the road. The engine man of the passenger train reversed his engine, and the brakemen applied their breaks in more than usual season; but in consequence of the slippery state of the rails (it was snowing and raining at the time) the train could not be stopped in time to avoid a collision. The baggage car was badly broken, and the forward passenger car considerably injured. The smoke pipe of the engine was knocked off, and several of the freight cars slightly damaged.

ken, and the forward passenger car considerably injured. The smoke pipe of the engine was knocked off, and several of the freight cars slightly damaged.

### BOUND VOLUMES.

Volumes of this Journal, for the Years 1838 to 1846, INCLUSIVE, may be had Bound, at Subscription Price, on application at this Office.

### MISSING NUMBERS

OF THE RAILROAD JOURNAL.  
Subscribers, who wish to obtain Missing Numbers of Back Volumes of this Journal, will do well to apply immediately.

One or two COMPLETE SETS of the RAILROAD JOURNAL may be had in a few weeks—or as soon as two numbers can be reprinted—by application to the Editor.

### ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—

for sale or imported to order by the subscriber.  
These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP,

75 Broad street, New York, sole agent in the United States.

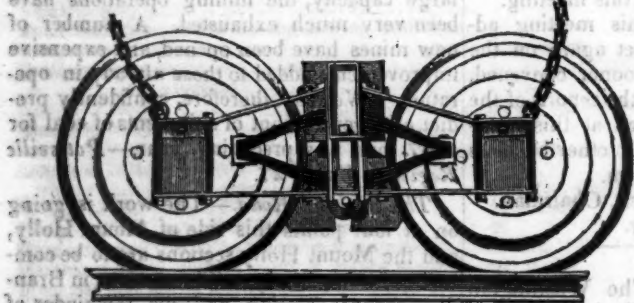
Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.			HEMPEN ROPES.			CHAINS.		STRENGTH
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.	Weight per fathom.	Diameter of iron.	Tons.	
	INCH.	LBS. OZ.	INCH.	LBS. OZ.	LBS.	INCH.		
11	4½	13 5	10	24 -	50	15-16	20	
13	3½	8 3	8½	16 -	27	11-16	13½	
14	3½	6 11	7½	12 8	17	9-16	10½	
15	2½	5 2	6½	9 4	13½	1-2	7½	
16	2½	4 3	6	8 8	10½	7-16	7	

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y24

### RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER

having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,]

WILLIAM ROE, Supt. of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed,] G. A. NICOLL,

Supt. Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed,] T. L. SMITH,

Jersey City, November 4, 1845.

N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car. For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot,

[Signed,] JOHN LEACH,

Jamaica November 12, 1845.

Supt. Motive Power.

**RICH & CO'S IMPROVED PATENT SALAMANDER SAFES.**

Warranted free from dampness, as well as fire and thief proof.

Particular attention is invited to the following certificates, which speak for themselves:

**TEST No. 10.**

*Certificate from Mr. Silas C. Field, of Vicksburgh, Mississippi.*

On the morning of the 14th ult., the store owned and occupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, rosin, lard, pork, sugar, molasses, liquors, and other articles of a combustible nature, in the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was red hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, when its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well merited.

S. C. FIELD.

**TEST No. 11.—Certificate.**

By the fire which occurred in this village on the 27th July last, our Law Office, together with many other buildings, was destroyed—we had in our office one of Rich's Improved Patent Salamander Safes, which, though heated red hot, preserved, without being the least damaged, many papers valuable to our clients—the envelopes of a few papers being slightly scorched. Some twenty-four hours after the fire, the Safe was removed, and so hot was it, that several hours were required for it to cool off. Our office was in the second story of a large brick building, all the wood used in construction of said house being pitch pine. While the Safe was red hot, one of the walls tumbled in, and so injured the lock that it was necessary to break the door open. From this test, we feel no hesitancy in recommending "Rich's Patent Salamander Safe" as entirely fire proof.

GOREE & KING.

Marion, Ala., Sept. 15th, 1846.

Still other Tests in the Great Fire of July 19, 1845.

The undersigned purchased of A. S. Martin, No. 138½ Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 54 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was parched by the extreme heat.

RICHARDS & CRONKHITE.

Benton, Miss., December 27, 1845.

One of Rich's Improved Salamander Safes, which I purchased on the 2d of June last of A. S. Marvin, 138½ Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied, No. 46 Broad street, was entirely consumed; the safe fell from the 2d story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards.

(Signed.)

WM. BLOODGOOD.

New York, 21st July, 1845.

Reference made to upwards of nine hundred and fifty merchants, cashiers, brokers, and officers of courts and counties, who have Rich's Safe's in use. The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry, etc. Prices from \$50 to \$500 each. For sale by

A. S. MARVIN, General Agent,  
138½ Water st., N. Y.

Also by Isaac Bridge 76 Magazine street, New Orleans.

Also by Lewis M Hatch, 120 Meeting street Charleston, S. C.

16 11

**FRENCH AND BAIRD'S PATENT SPARK ARRESTER.**

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. McKee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed.

FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

Philadelphia, Pa., April 6, 1844.

\*. The letters in the figures refer to the article given in the Journal of June, 1844.

ja45

**PATENT HAMMERED RAILROAD, SHIP**

and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed.

JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co., Boston.

ja45

**MACHINE WORKS OF ROGERS,**

Ketchum & Grosvenor, Paterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery

of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR,

Paterson, N. J., or 60 Wall street, N. York.

**PATENT RAILROAD, SHIP AND BOAT**

Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York will be punctually attended to.

HENRY BURDEN, Agent.

Spikes are kept for sale, at Factory Prices, by J. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

\*. Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.

ja45

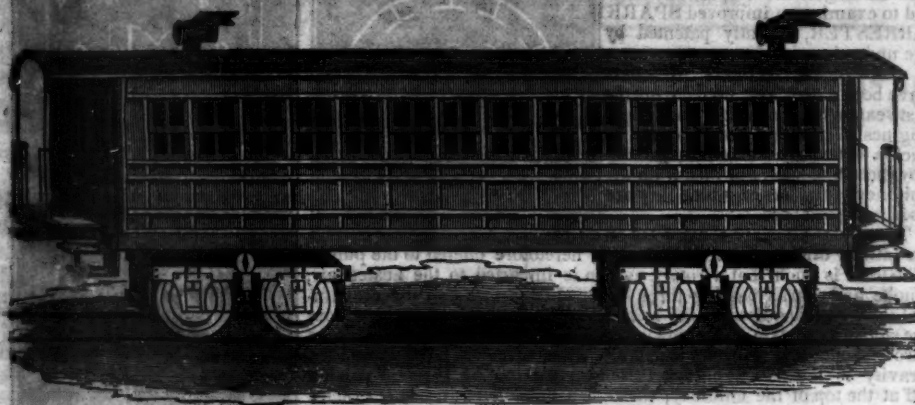
**SPRING STEEL FOR LOCOMOTIVES,**

Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1½ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent,  
Albany Iron and Nail Works,

## DAVENPORT & BRIDGES'

### CAR WORKS, CAMBRIDGEPORT, MASS.

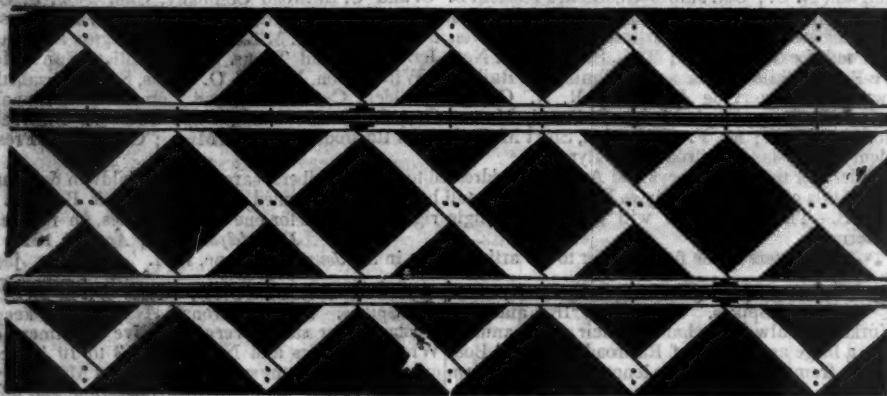


Manufacture to Order, Passenger and Freight Cars of every description, and of the most improved pattern; also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices.

All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—Omnibuses pass every fifteen minutes. 10/

## THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

**THE UNDERSIGNED RESPECTFULLY** invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trallis are 5 feet from centre to centre, while in the new construction they are only 2½ feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trallis, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trallis for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

#### ESTIMATE OF THE PROBABLE COST OF ONE MILE.

4,224 Timbers, 11 ft. long, 3 x 6 inches =	
68,696 ft. b.m., at \$10 =	\$686 96
587 Oak joint blocks 2 ft. x 3 x 15 in. =	
4,403 ft. b.m., at \$13 =	57 24
13,000 Spikes = 2,250 lbs. at 4½ cts. =	101 25
Workmanship free of patent charge =	600 00

Cost of one mile including the laying of the Rail ..... \$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

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